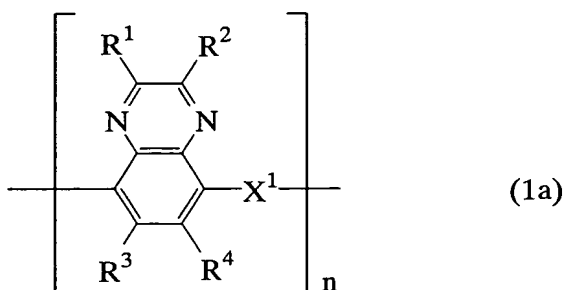


CLAIMS:

1. An electrode for an energy storage device comprising a polyaminoquinoxaline compound of the following formula (1a) as an electrode active material,

[Chemical Formula 1]



wherein R^1 and R^2 independently represent a hydrogen atom, a hydroxyl group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R^1 and R^2 are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

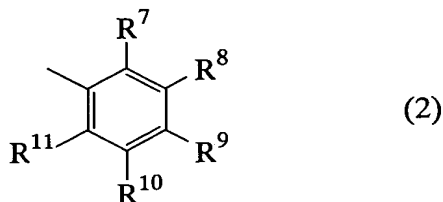
R^3 and R^4 independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R^3 and R^4

are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

5 X¹ represents -NH-R⁵-NH- or -NH-R⁶- wherein R⁵ and R⁶ independently represent a C₁-C₁₀ alkylene group, a -C(O)CH₂-, -CH₂C(O)-, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted
10 with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed hetero ring which may be substituted with Y, in
15 which Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted
20 with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may
25 be substituted with Z provided that if Y is two or more in number, Y may be the same or different, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl
30 group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different; and

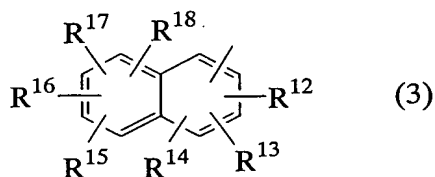
n is an integer of 2 or over.

2. The electrode according to claim 1, wherein R¹ and R² independently represent a group of the following formula (2)
[Chemical Formula 2]



5 wherein R⁷-R¹¹ independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₄ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₄ cyanoalkyl group, a phenyl group which may be substituted with Z, a
10 naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl
15 group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

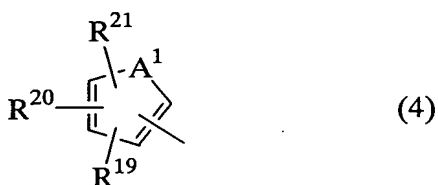
3. The electrode according to claim 1, wherein R¹ and R²
20 independently represent a group of the following formula (3)
[Chemical Formula 3]



wherein R¹²-R¹⁸ independently represent, each substituted at
an arbitrary position of the ring of the formula, a hydrogen
25 atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted

with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

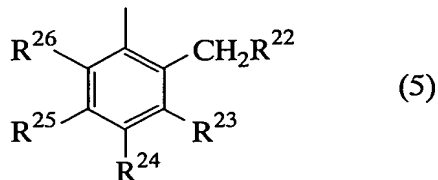
4. The electrode according to claim 1, wherein R¹ and R² independently represent a group of the following formula (4)
[Chemical Formula 4]



wherein R¹⁹-R²¹ independently represent, each substituted at an arbitrary position of the ring of the formula, a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group; and

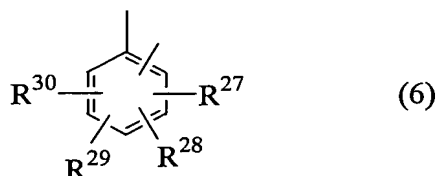
A¹ represents NH, O or S.

5. The electrode according to claim 1, wherein R^1 and R^2 independently represent a group of the following formula (5)
[Chemical Formula 5]



5 wherein R^{22} represents a halogen atom or a cyano group, and R^{23} - R^{26} independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted with Z, a
10 naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} haloalkyl group, a C_1 - C_{10} alkoxy group, a C_1 - C_{10} cyanoalkyl
15 group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

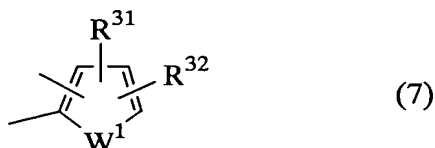
6. The electrode according to any one of claims 1 to 5,
20 wherein R^5 represents a group of the following formula (6)
[Chemical Formula 6]



wherein R^{27} - R^{30} independently represent, each substituted at an arbitrary position on the ring of the formula, a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted
25 with Z, a naphthyl group which may be substituted with Z or a

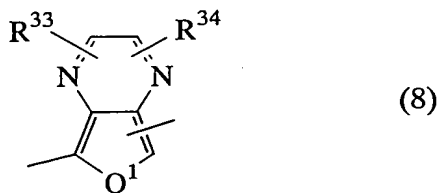
thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

7. The electrode according to any one of claims 1 to 5, wherein R⁵ represents a group of the following formula (7)
[Chemical Formula 7]



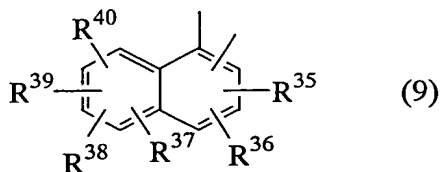
- wherein R³¹-R³² independently represent, each substituted at an arbitrary position on the ring of the formula, a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group; and
W¹ represents NH, O or S.

8. The electrode according to any one of claims 1 to 5,
wherein R⁵ represents a group of the following formula (8)
[Chemical Formula 8]



5 wherein R³³-R³⁴ independently represent, each substituted at
an arbitrary position on the ring of the formula, a hydrogen
atom, a halogen atom, a cyano group, a nitro group, an amino
group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a
C₁-C₁₀ alkoxy group, a phenyl group which may be substituted
10 with Z, a naphthyl group which may be substituted with Z or a
thienyl group which may be substituted with Z, in which Z
represents a halogen atom, a cyano group, a nitro group, an
amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl
group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀
15 cyanoalkyl group, a phenyl group, a biphenyl group, a
naphthyl group, a thienyl group, a pyrrolyl group, a furyl
group or a condensed heteroaryl group; and
Q¹ represents NH, O or S.

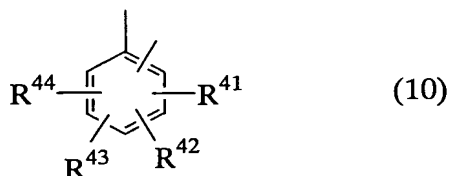
20 9. The electrode according to any one of claims 1 to 5,
wherein R⁵ represents a group of the following formula (9)
[Chemical Formula 9]



25 wherein R³⁵-R⁴⁰ independently represent, each substituted at
an arbitrary position on the ring of the formula, a hydrogen
atom, a halogen atom, a cyano group, a nitro group, an amino
group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a
C₁-C₁₀ alkoxy group, a phenyl group which may be substituted

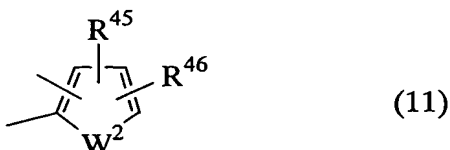
with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

- 10 10. The electrode according to any one of claims 1 to 5, wherein R⁶ represents a group of the following formula (10)
[Chemical Formula 10]



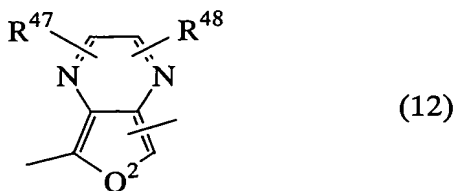
- wherein R⁴¹-R⁴⁴ independently represent, each substituted on
15 an arbitrary position of the ring of the formula, a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a
20 thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a
25 naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

11. The electrode according to any one of claims 1 to 5,
wherein R⁶ represents a group of the following formula (11)
[Chemical Formula 11]



5 wherein R⁴⁵-R⁴⁶ independently represent, each substituted on
an arbitrary position of the ring of the formula, a hydrogen
atom, a halogen atom, a cyano group, a nitro group, an amino
group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a
C₁-C₁₀ alkoxy group, a phenyl group which may be substituted
10 with Z, a naphthyl group which may be substituted with Z or a
thienyl group which may be substituted with Z, in which Z
represents a halogen atom, a cyano group, a nitro group, an
amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl
group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀
15 cyanoalkyl group, a phenyl group, a biphenyl group, a
naphthyl group, a thienyl group, a pyrrolyl group, a furyl
group or a condensed heteroaryl group; and
W² represents NH, O or S.

20 12. The electrode according to any one of claims 1 to 5,
wherein R⁶ represents a group of the following formula (12)
[Chemical Formula 12]

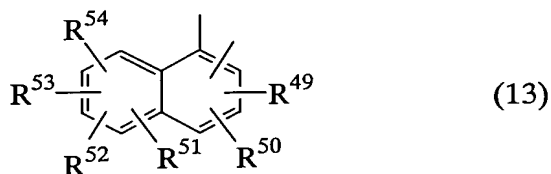


25 wherein R⁴⁷-R⁴⁸ independently represent, each substituted on
an arbitrary position of the ring of the formula, a hydrogen
atom, a halogen atom, a cyano group, a nitro group, an amino
group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a
C₁-C₁₀ alkoxy group, a phenyl group which may be substituted

with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group; and
 Q² represents NH, O or S.

10

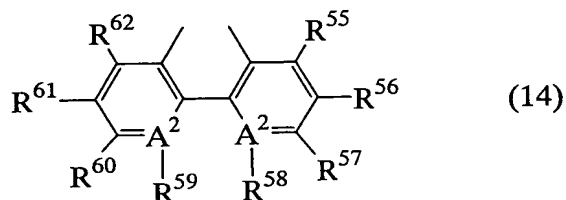
13. The electrode according to any one of claims 1 to 5, wherein R⁶ represents a group of the following formula (13)
 [Chemical Formula 13]



15 wherein R⁴⁹-R⁵⁴ independently represent, each substituted on an arbitrary position of the ring of the formula, a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted
 20 with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a
 25 naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

14. The electrode according to claim 1, wherein the group formed by bonding R¹ and R² through a single bond is represented by the formula (14)

[Chemical Formula 14]

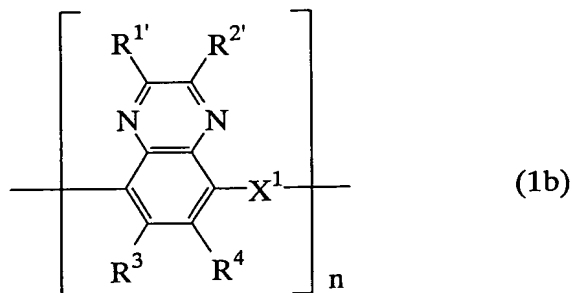


5

wherein A²'s are each C or N, R⁵⁵-R⁶² independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group, provided that when A² represents N, R⁵⁸ and R⁵⁹ are both non-existent.

15. An electrode for an energy storage device comprising a polyaminoquinoxaline compound of the following formula (1b) as an electrode active material

[Chemical Formula 15]



wherein R^1 and R^2 join together to form $-\text{CH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{O}-$,
 $-\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{OCH}_2-$, $-\text{OCH}_2\text{O}-$, $-\text{CH}_2\text{CH}_2\text{S}-$, $-\text{SCH}_2\text{CH}_2-$, $-\text{CH}_2\text{SCH}_2-$,
 $-\text{CH}_2\text{CH}_2\text{N}(R^1)-$, $-\text{N}(R^1)\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{N}(R^1)\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-$,
 $-\text{CH}_2\text{CH}_2\text{CH}_2\text{O}-$, $-\text{OCH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{OCH}_2-$, $-\text{CH}_2\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{OCH}_2\text{O}-$,
5 $-\text{OCH}_2\text{CH}_2\text{O}-$, $-\text{SCH}_2\text{CH}_2\text{S}-$, $-\text{OCH}_2\text{CH}_2\text{S}-$, $-\text{SCH}_2\text{CH}_2\text{O}-$, $-\text{CH}_2\text{CH}=\text{CH}-$,
 $-\text{CH}=\text{CHCH}_2-$, $-\text{OCH}=\text{CH}-$, $-\text{CH}=\text{CHO}-$, $-\text{SCH}=\text{CH}-$, $-\text{CH}=\text{CHS}-$,
 $-\text{N}(R^1)\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHN}(R^1)-$, $-\text{OCH}=\text{N}-$, $-\text{N}=\text{CHO}-$, $-\text{SCH}=\text{N}-$,
 $-\text{N}=\text{CHS}-$, $-\text{N}(R^1)\text{CH}=\text{N}-$, $-\text{N}=\text{CHN}(R^1)-$, $-\text{N}(R^1)\text{N}=\text{CH}-$, $-\text{CH}=\text{N}(R^1)\text{N}-$,
 $-\text{CH}=\text{CHCH}=\text{CH}-$, $-\text{OCH}_2\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHCH}_2\text{O}-$, $-\text{N}=\text{CHCH}=\text{CH}-$,
10 $-\text{CH}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHN}=\text{CH}-$, or $-\text{CH}=\text{NCH}=\text{N}-$ wherein a
hydrogen atom bonded to a carbon atom of these groups may be
substituted with Y, and R^1 represents a hydrogen atom, a
 C_1 - C_{10} alkyl group, a C_1 - C_{10} haloalkyl group, a C_1 - C_{10}
cyanoalkyl group, a phenyl group which may be substituted
15 with Z, a pyridyl group which may be substituted with Z, a
biphenyl group which may be substituted with Z, a naphthyl
group which may be substituted with Z, a thienyl group which
may be substituted with Z, a pyrrolyl group which may be
substituted with Z, a furyl group which may be substituted
20 with Z, or a condensed heteroaryl group which may be
substituted with Z;

R^3 and R^4 independently represent a hydrogen atom, a
halogen atom, a cyano group, a nitro group, an amino group, a
 C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which
25 may be substituted with Y, a pyridyl group which may be
substituted with Y, a biphenyl group which may be substituted
with Y, a naphthyl group which may be substituted with Y, a
thienyl group which may be substituted with Y, a pyrrolyl
group which may be substituted with Y, a furyl group which
30 may be substituted with Y or a condensed heteroaryl group
which may be substituted with Y provided that when R^3 and R^4
are, respectively, the above-defined phenyl, pyridyl,
biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed
heteroaryl group, these groups may be joined through a single
35 bond; and

X^1 represents $-\text{NH}-R^5-\text{NH}-$ or $-\text{NH}-R^6-$ wherein R^5 and R^6
independently represent a C_1 - C_{10} alkylene group, a $-\text{C}(\text{O})\text{CH}_2-$,

-CH₂C(O)-, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed hetero ring which may be substituted with Y;

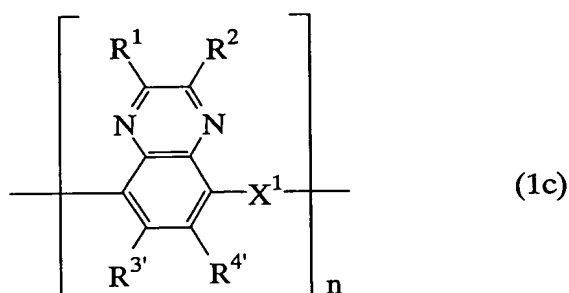
Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different;

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different; and

n is an integer of 2 or over.

16. An electrode for an energy storage device comprising a polyaminoquinoxaline compound of the following formula (1c) as an electrode active material

[Chemical Formula 16]



5

wherein R^1 and R^2 independently represent a hydrogen atom, a hydroxyl group, a $\text{C}_1\text{-C}_{10}$ alkyl group, a $\text{C}_1\text{-C}_{10}$ alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R^1 and R^2 are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

$\text{R}^{3'}$ and $\text{R}^{4'}$ join together to form $-\text{CH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{O}-$, $-\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{S}-$, $-\text{SCH}_2\text{CH}_2-$, $-\text{CH}_2\text{SCH}_2-$, $-\text{CH}_2\text{CH}_2\text{N}(\text{R}')-$, $-\text{N}(\text{R}')\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{N}(\text{R}')\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{CH}_2\text{O}-$, $-\text{OCH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{OCH}_2-$, $-\text{CH}_2\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{OCH}_2\text{O}-$, $-\text{OCH}_2\text{CH}_2\text{O}-$, $-\text{SCH}_2\text{CH}_2\text{S}-$, $-\text{OCH}_2\text{CH}_2\text{S}-$, $-\text{SCH}_2\text{CH}_2\text{O}-$, $-\text{CH}_2\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHCH}_2-$, $-\text{OCH}=\text{CH}-$, $-\text{CH}=\text{CHO}-$, $-\text{SCH}=\text{CH}-$, $-\text{CH}=\text{CHS}-$, $-\text{N}(\text{R}')\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHN}(\text{R}')-$, $-\text{OCH}=\text{N}-$, $-\text{N}=\text{CHO}-$, $-\text{SCH}=\text{N}-$, $-\text{N}=\text{CHS}-$, $-\text{N}(\text{R}')\text{CH}=\text{N}-$, $-\text{N}=\text{CHN}(\text{R}')-$, $-\text{N}(\text{R}')\text{N}=\text{CH}-$, $-\text{CH}=\text{N}(\text{R}')\text{N}-$, $-\text{CH}=\text{CHCH}=\text{CH}-$, $-\text{OCH}_2\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHCH}_2\text{O}-$, $-\text{N}=\text{CHCH}=\text{CH}-$, $-\text{CH}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHN}=\text{CH}-$, or $-\text{CH}=\text{NCH}=\text{N}-$ wherein a hydrogen atom bonded to a carbon atom of these groups may be substituted with Y, and R' represents a hydrogen atom, a

30

C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z, or a condensed heteroaryl group which may be substituted with Z;

10 X¹ represents -NH-R⁵-NH- or -NH-R⁶- wherein R⁵ and R⁶ independently represent a C₁-C₁₀ alkylene group, a -C(O)CH₂-, -CH₂C(O)-, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed hetero ring which may be substituted with Y;

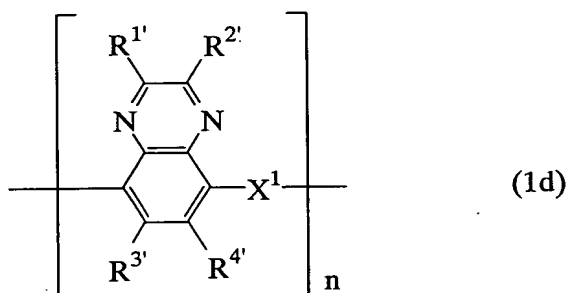
20 Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different;

35 Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl

group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different; and n is an integer of 2 or over.

- 5 17. An electrode for an energy storage device comprising a polyaminoquinoxaline compound of the following formula (1d) as an electrode active material

[Chemical Formula 17]



- 10 wherein R^{1'} and R^{2'} join together to form -CH₂CH₂CH₂-, -CH₂CH₂O-, -OCH₂CH₂-, -CH₂OCH₂-, -OCH₂O-, -CH₂CH₂S-, -SCH₂CH₂-, -CH₂SCH₂-, -CH₂CH₂N(R')-, -N(R')CH₂CH₂-, -CH₂N(R')CH₂-, -CH₂CH₂CH₂CH₂-, -CH₂CH₂CH₂O-, -OCH₂CH₂CH₂-, -CH₂CH₂OCH₂-, -CH₂OCH₂CH₂-, -CH₂OCH₂O-, -OCH₂CH₂O-, -SCH₂CH₂S-, -OCH₂CH₂S-, -SCH₂CH₂O-, -CH₂CH=CH-, -CH=CHCH₂-, -OCH=CH-, -CH=CHO-, -SCH=CH-, -CH=CHS-, -N(R')CH=CH-, -CH=CHN(R')-, -OCH=N-, -N=CHO-, -SCH=N-, -N=CHS-, -N(R')CH=N-, -N=CHN(R')-, -N(R')N=CH-, -CH=N(R')N-, -CH=CHCH=CH-, -OCH₂CH=CH-, -CH=CHCH₂O-, -N=CHCH=CH-, -CH=CHCH=N-, -N=CHCH=N-, -N=CHN=CH-, or -CH=NCH=N- wherein a
 20 hydrogen atom bonded to a carbon atom of these groups may be substituted with Y, and R' represents a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a
 25 biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z, or a condensed heteroaryl group which may be
 30 substituted with Z;

R^3 and R^4 join together to form $-CH_2CH_2CH_2-$, $-CH_2CH_2O-$,
 $-OCH_2CH_2-$, $-CH_2OCH_2-$, $-OCH_2O-$, $-CH_2CH_2S-$, $-SCH_2CH_2-$, $-CH_2SCH_2-$,
 $-CH_2CH_2N(R')$, $-N(R')CH_2CH_2-$, $-CH_2N(R')CH_2-$, $-CH_2CH_2CH_2CH_2-$,
 $-CH_2CH_2CH_2O-$, $-OCH_2CH_2CH_2-$, $-CH_2CH_2OCH_2-$, $-CH_2OCH_2CH_2-$, $-CH_2OCH_2O-$,
5 $-OCH_2CH_2O-$, $-SCH_2CH_2S-$, $-OCH_2CH_2S-$, $-SCH_2CH_2O-$, $-CH_2CH=CH-$,
 $-CH=CHCH_2-$, $-OCH=CH-$, $-CH=CHO-$, $-SCH=CH-$, $-CH=CHS-$,
 $-N(R')CH=CH-$, $-CH=CHN(R')$, $-OCH=N-$, $-N=CHO-$, $-SCH=N-$,
 $-N=CHS-$, $-N(R')CH=N-$, $-N=CHN(R')$, $-N(R')N=CH-$, $-CH=N(R')N-$,
 $-CH=CHCH=CH-$, $-OCH_2CH=CH-$, $-CH=CHCH_2O-$, $-N=CHCH=CH-$,
10 $-CH=CHCH=N-$, $-N=CHCH=N-$, $-N=CHN=CH-$, or $-CH=NCH=N-$ wherein a
hydrogen atom bonded to a carbon atom of these groups may be
substituted with Y, and R' represents a hydrogen atom, a
 C_1 - C_{10} alkyl group, a C_1 - C_{10} haloalkyl group, a C_1 - C_{10}
cyanoalkyl group, a phenyl group which may be substituted
15 with Z, a pyridyl group which may be substituted with Z, a
biphenyl group which may be substituted with Z, a naphthyl
group which may be substituted with Z, a thienyl group which
may be substituted with Z, a pyrrolyl group which may be
substituted with Z, a furyl group which may be substituted
20 with Z, or a condensed heteroaryl group which may be
substituted with Z;

X^1 represents $-NH-R^5-NH-$ or $-NH-R^6-$ wherein R^5 and R^6
independently represent a C_1 - C_{10} alkylene group, a $-C(O)CH_2-$,
 $-CH_2C(O)-$, a divalent benzene ring which may be substituted
25 with Y, a divalent pyridine ring which may be substituted
with Y, a divalent biphenyl group which may be substituted
with Y, a divalent naphthalene ring which may be substituted
with Y, a divalent thiophene ring which may be substituted
with Y, a divalent pyrrole ring which may be substituted with
30 Y, a furan ring which may be substituted with Y, or a
condensed hetero ring which may be substituted with Y;

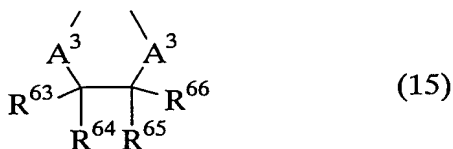
Y represents a halogen atom, a cyano group, a nitro
group, an amino group, an epoxy group, a vinyl group, a C_1 - C_{10}
alkyl group, a C_1 - C_{10} haloalkyl group, a C_1 - C_{10} alkoxy group, a
35 C_1 - C_{10} cyanoalkyl group, a phenyl group which may be
substituted with Z, a pyridyl group which may be substituted
with Z, a biphenyl group which may be substituted with Z, a

naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different;

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different; and n is an integer of 2 or over.

18. The electrode according to claim 15 or 17, wherein the group formed by joining R^{1'} and R^{2'} together is of the formula (15)

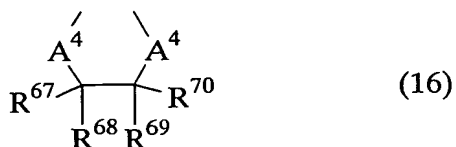
[Chemical Formula 18]



wherein A³ represents O or S, and R⁶³-R⁶⁶ independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

19. The electrode according to claim 16 or 17, wherein the group formed by joining R^{3'} and R^{4'} together is of the formula (16)

[Chemical Formula 19]

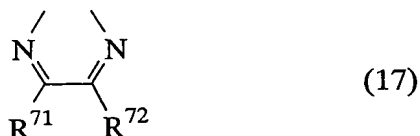


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wherein A⁴ represents O or S, and R⁶⁷-R⁷⁰ independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group.

20. The electrode according to claim 16 or 17, wherein the group formed by joining R^{3'} and R^{4'} is of the formula (17)

[Chemical Formula 20]



wherein R⁷¹ and R⁷² independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z or a thienyl group which may be substituted with Z, in which Z represents a halogen atom, a cyano group, a nitro group, an amino group,

an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed
5 heteroaryl group.

21. An energy storage device comprising an electrode for an energy storage device according to any one of claims 1 to 20.

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22. A method for making an electrode for an energy storage device according to claim 1, which method comprising applying and building up, on a current collector electrode, an electrode active material made of a polyaminoquinoxaline
15 compound represented by the afore-indicated formula (1a).

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23. A method for making an electrode for an energy storage device according to claim 15, which method comprising applying and building up, on a current collector electrode, an electrode active material made of a polyaminoquinoxaline
compound represented by the afore-indicated formula (1b).

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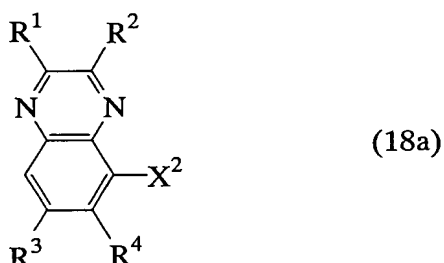
24. A method for making an electrode for an energy storage device according to claim 16, which method comprising applying and building up, on a current collector electrode, an electrode active material made of a polyaminoquinoxaline
compound represented by the afore-indicated formula (1c).

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25. A method for making an electrode for an energy storage device according to claim 17, which method comprising applying and building up, on a current collector electrode, an electrode active material made of a polyaminoquinoxaline
compound represented by the afore-indicated formula (1d).

26. A method for making an electrode for an energy storage device as recited in claim 1 above, which method comprising electrolytically polymerizing an aminoquinoxaline compound represented by the formula (18a) on a current collector electrode,

[Chemical Formula 21]



wherein R^1 and R^2 independently represent a hydrogen atom, a hydroxyl group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R^1 and R^2 are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

R^3 and R^4 independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R^3 and R^4 are, respectively, the above-defined phenyl, pyridyl,

biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

X^2 represents $-NH-R^{73}-NH_2$ or $-NH-R^{74}$, in which R^{73} represents a C_1-C_{10} alkylene group, a $-C(O)CH_2-$, $-CH_2C(O)-$, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed hetero ring which may be substituted with Y, and R^{74} a C_1-C_{10} alkyl group, an acetyl group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y, or a condensed heteroaryl group which may be substituted with Y;

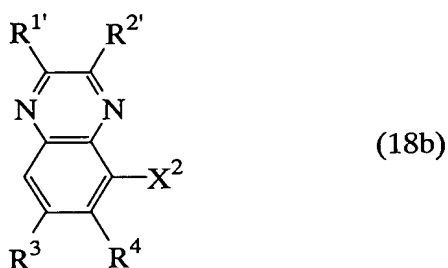
Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C_1-C_{10} alkyl group, a C_1-C_{10} haloalkyl group, a C_1-C_{10} alkoxy group, a C_1-C_{10} cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different; and

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C_1-C_{10} alkyl group, a C_1-C_{10} haloalkyl group, a C_1-C_{10} alkoxy group, a C_1-C_{10} cyanoalkyl group, a phenyl group, a biphenyl group, a

naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different.

- 5 27. A method for making an electrode for an energy storage device according to claim 15, which method comprising electrolytically polymerizing an aminoquinoxaline compound represented by the formula (18b) on a current collector electrode,

10 [Chemical Formula 22]



- wherein R^{1'} and R^{2'} join together to form -CH₂CH₂CH₂-, -CH₂CH₂O-, -OCH₂CH₂-, -CH₂OCH₂-, -OCH₂O-, -CH₂CH₂S-, -SCH₂CH₂-, -CH₂SCH₂-, -CH₂CH₂N(R')-, -N(R')CH₂CH₂-, -CH₂N(R')CH₂-, -CH₂CH₂CH₂CH₂-,
- 15 -CH₂CH₂CH₂O-, -OCH₂CH₂CH₂-, -CH₂CH₂OCH₂-, -CH₂OCH₂CH₂-, -CH₂OCH₂O-, -OCH₂CH₂O-, -SCH₂CH₂S-, -OCH₂CH₂S-, -SCH₂CH₂O-, -CH₂CH=CH-, -CH=CHCH₂-, -OCH=CH-, -CH=CHO-, -SCH=CH-, -CH=CHS-, -N(R')CH=CH-, -CH=CHN(R')-, -OCH=N-, -N=CHO-, -SCH=N-, -N=CHS-, -N(R')CH=N-, -N=CHN(R')-, -N(R')N=CH-, -CH=N(R')N-,
- 20 -CH=CHCH=CH-, -OCH₂CH=CH-, -CH=CHCH₂O-, -N=CHCH=CH-, -CH=CHCH=N-, -N=CHCH=N-, -N=CHN=CH-, or -CH=NCH=N- wherein a hydrogen atom bonded to a carbon atom of these groups may be substituted with Y, and R' represents a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀
- 25 cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted
- 30 substituted with Z, a furyl group which may be substituted

with Z, or a condensed heteroaryl group which may be substituted with Z;

R³ and R⁴ independently represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, an amino group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R³ and R⁴ are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

X² represents -NH-R⁷³-NH₂ or -NH-R⁷⁴, in which R⁷³ represents a C₁-C₁₀ alkylene group, a -C(O)CH₂-, -CH₂C(O)-, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed hetero ring which may be substituted with Y, and R⁷⁴ a C₁-C₁₀ alkyl group, an acetyl group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y, or a condensed heteroaryl group which may be substituted with Y;

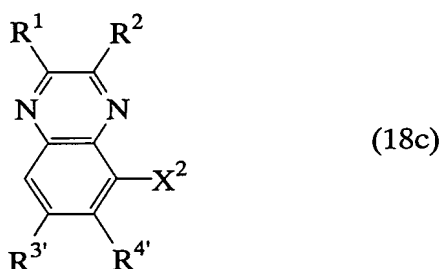
Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a

C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different; and

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different.

28. A method for making an electrode for an energy storage device according to claim 16, which method comprising electrolytically polymerizing an aminoquinoxaline compound represented by the formula (18c) on a current collector electrode,

[Chemical Formula 23]



wherein R¹ and R² independently represent a hydrogen atom, a hydroxyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted

with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y or a condensed heteroaryl group which may be substituted with Y provided that when R¹ and R² are, respectively, the above-defined phenyl, pyridyl, biphenyl, naphthyl, thienyl, pyrrolyl, furyl or condensed heteroaryl group, these groups may be joined through a single bond;

R^{3'} and R^{4'} join together to form -CH₂CH₂CH₂-, -CH₂CH₂O-, -OCH₂CH₂-, -CH₂OCH₂-, -OCH₂O-, -CH₂CH₂S-, -SCH₂CH₂-, -CH₂SCH₂-, -CH₂CH₂N(R')-, -N(R')CH₂CH₂-, -CH₂N(R')CH₂-, -CH₂CH₂CH₂CH₂-, -CH₂CH₂CH₂O-, -OCH₂CH₂CH₂-, -CH₂CH₂OCH₂-, -CH₂OCH₂CH₂-, -CH₂OCH₂O-, -OCH₂CH₂O-, -SCH₂CH₂S-, -OCH₂CH₂S-, -SCH₂CH₂O-, -CH₂CH=CH-, -CH=CHCH₂-, -OCH=CH-, -CH=CHO-, -SCH=CH-, -CH=CHS-, -N(R')CH=CH-, -CH=CHN(R')-, -OCH=N-, -N=CHO-, -SCH=N-, -N=CHS-, -N(R')CH=N-, -N=CHN(R')-, -N(R')N=CH-, -CH=N(R')N-, -CH=CHCH=CH-, -OCH₂CH=CH-, -CH=CHCH₂O-, -N=CHCH=CH-, -CH=CHCH=N-, -N=CHCH=N-, -N=CHN=CH-, or -CH=NCH=N- wherein a hydrogen atom bonded to a carbon atom of these groups may be substituted with Y, and R' represents a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z, or a condensed heteroaryl group which may be substituted with Z;

X² represents -NH-R⁷³-NH₂ or -NH-R⁷⁴, in which R⁷³ represents a C₁-C₁₀ alkylene group, a -C(O)CH₂-, -CH₂C(O)-, a divalent benzene ring which may be substituted with Y, a divalent pyridine ring which may be substituted with Y, a divalent biphenyl group which may be substituted with Y, a divalent naphthalene ring which may be substituted with Y, a divalent thiophene ring which may be substituted with Y, a divalent pyrrole ring which may be substituted with Y, a furan ring which may be substituted with Y, or a condensed

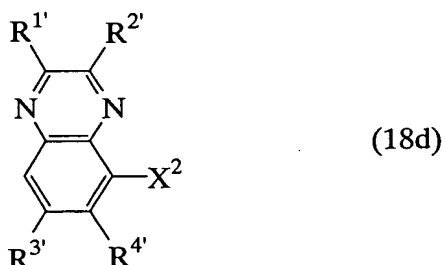
hetero ring which may be substituted with Y, and R⁷⁴ a C₁-C₁₀ alkyl group, an acetyl group, a phenyl group which may be substituted with Y, a pyridyl group which may be substituted with Y, a biphenyl group which may be substituted with Y, a naphthyl group which may be substituted with Y, a thienyl group which may be substituted with Y, a pyrrolyl group which may be substituted with Y, a furyl group which may be substituted with Y, or a condensed heteroaryl group which may be substituted with Y;

Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different; and

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different.

29. A method for making an electrode for an energy storage device according to claim 17, which method comprising electrolytically polymerizing an aminoquinoxaline compound represented by the formula (18d) on a current collector electrode,

[Chemical Formula 24]



wherein R^{1'} and R^{2'} join together to form -CH₂CH₂CH₂-, -CH₂CH₂O-, -OCH₂CH₂-, -CH₂OCH₂-, -OCH₂O-, -CH₂CH₂S-, -SCH₂CH₂-, -CH₂SCH₂-,
 10 -CH₂CH₂N(R')-, -N(R')CH₂CH₂-, -CH₂N(R')CH₂-, -CH₂CH₂CH₂CH₂-,
 -CH₂CH₂CH₂O-, -OCH₂CH₂CH₂-, -CH₂CH₂OCH₂-, -CH₂OCH₂CH₂-, -CH₂OCH₂O-,
 -OCH₂CH₂O-, -SCH₂CH₂S-, -OCH₂CH₂S-, -SCH₂CH₂O-, -CH₂CH=CH-,
 -CH=CHCH₂-, -OCH=CH-, -CH=CHO-, -SCH=CH-, -CH=CHS-,
 -N(R')CH=CH-, -CH=CHN(R')-, -OCH=N-, -N=CHO-, -SCH=N-,
 15 -N=CHS-, -N(R')CH=N-, -N=CHN(R')-, -N(R')N=CH-, -CH=N(R')N-,
 -CH=CHCH=CH-, -OCH₂CH=CH-, -CH=CHCH₂O-, -N=CHCH=CH-,
 -CH=CHCH=N-, -N=CHCH=N-, -N=CHN=CH-, or -CH=NCH=N- wherein a
 hydrogen atom bonded to a carbon atom of these groups may be
 substituted with Y, and R' represents a hydrogen atom, a
 20 C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀
 cyanoalkyl group, a phenyl group which may be substituted
 with Z, a pyridyl group which may be substituted with Z, a
 biphenyl group which may be substituted with Z, a naphthyl
 group which may be substituted with Z, a thienyl group which
 25 may be substituted with Z, a pyrrolyl group which may be
 substituted with Z, a furyl group which may be substituted
 with Z, or a condensed heteroaryl group which may be
 substituted with Z;

R^{3'} and R^{4'} join together to form -CH₂CH₂CH₂-, -CH₂CH₂O-,
 30 -OCH₂CH₂-, -CH₂OCH₂-, -OCH₂O-, -CH₂CH₂S-, -SCH₂CH₂-, -CH₂SCH₂-,
 -CH₂CH₂N(R')-, -N(R')CH₂CH₂-, -CH₂N(R')CH₂-, -CH₂CH₂CH₂CH₂-,

$-\text{CH}_2\text{CH}_2\text{CH}_2\text{O}-$, $-\text{OCH}_2\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CH}_2\text{OCH}_2-$, $-\text{CH}_2\text{OCH}_2\text{CH}_2-$, $-\text{CH}_2\text{OCH}_2\text{O}-$,
 $-\text{OCH}_2\text{CH}_2\text{O}-$, $-\text{SCH}_2\text{CH}_2\text{S}-$, $-\text{OCH}_2\text{CH}_2\text{S}-$, $-\text{SCH}_2\text{CH}_2\text{O}-$, $-\text{CH}_2\text{CH}=\text{CH}-$,
 $-\text{CH}=\text{CHCH}_2-$, $-\text{OCH}=\text{CH}-$, $-\text{CH}=\text{CHO}-$, $-\text{SCH}=\text{CH}-$, $-\text{CH}=\text{CHS}-$,
 $-\text{N}(\text{R}')\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHN}(\text{R}')-$, $-\text{OCH}=\text{N}-$, $-\text{N}=\text{CHO}-$, $-\text{SCH}=\text{N}-$,
5 $-\text{N}=\text{CHS}-$, $-\text{N}(\text{R}')\text{CH}=\text{N}-$, $-\text{N}=\text{CHN}(\text{R}')-$, $-\text{N}(\text{R}')\text{N}=\text{CH}-$, $-\text{CH}=\text{N}(\text{R}')\text{N}-$,
 $-\text{CH}=\text{CHCH}=\text{CH}-$, $-\text{OCH}_2\text{CH}=\text{CH}-$, $-\text{CH}=\text{CHCH}_2\text{O}-$, $-\text{N}=\text{CHCH}=\text{CH}-$,
 $-\text{CH}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHCH}=\text{N}-$, $-\text{N}=\text{CHN}=\text{CH}-$, or $-\text{CH}=\text{NCH}=\text{N}-$ wherein a
hydrogen atom bonded to a carbon atom of these groups may be
substituted with Y, and R' represents a hydrogen atom, a
10 C_1 - C_{10} alkyl group, a C_1 - C_{10} haloalkyl group, a C_1 - C_{10}
cyanoalkyl group, a phenyl group which may be substituted
with Z, a pyridyl group which may be substituted with Z, a
biphenyl group which may be substituted with Z, a naphthyl
group which may be substituted with Z, a thienyl group which
15 may be substituted with Z, a pyrrolyl group which may be
substituted with Z, a furyl group which may be substituted
with Z, or a condensed heteroaryl group which may be
substituted with Z;

X^2 represents $-\text{NH}-\text{R}^{73}-\text{NH}_2$ or $-\text{NH}-\text{R}^{74}$, in which R^{73}
20 represents a C_1 - C_{10} alkylene group, a $-\text{C}(\text{O})\text{CH}_2-$, $-\text{CH}_2\text{C}(\text{O})-$, a
divalent benzene ring which may be substituted with Y, a
divalent pyridine ring which may be substituted with Y, a
divalent biphenyl group which may be substituted with Y, a
divalent naphthalene ring which may be substituted with Y, a
25 divalent thiophene ring which may be substituted with Y, a
divalent pyrrole ring which may be substituted with Y, a
furan ring which may be substituted with Y, or a condensed
hetero ring which may be substituted with Y, and R^{74} a C_1 - C_{10}
alkyl group, an acetyl group, a phenyl group which may be
30 substituted with Y, a pyridyl group which may be substituted
with Y, a biphenyl group which may be substituted with Y, a
naphthyl group which may be substituted with Y, a thienyl
group which may be substituted with Y, a pyrrolyl group which
may be substituted with Y, a furyl group which may be
35 substituted with Y, or a condensed heteroaryl group which may
be substituted with Y;

Y represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group which may be substituted with Z, a pyridyl group which may be substituted with Z, a biphenyl group which may be substituted with Z, a naphthyl group which may be substituted with Z, a thienyl group which may be substituted with Z, a pyrrolyl group which may be substituted with Z, a furyl group which may be substituted with Z or a condensed heteroaryl group which may be substituted with Z provided that if Y is two or more in number, Y may be the same or different; and

Z represents a halogen atom, a cyano group, a nitro group, an amino group, an epoxy group, a vinyl group, a C₁-C₁₀ alkyl group, a C₁-C₁₀ haloalkyl group, a C₁-C₁₀ alkoxy group, a C₁-C₁₀ cyanoalkyl group, a phenyl group, a biphenyl group, a naphthyl group, a thienyl group, a pyrrolyl group, a furyl group or a condensed heteroaryl group provided that if Z is two or more in number, Z may be the same or different.